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IS 9503 (1988): Aluminium bottles for packing of liquid pesticides [MTD 32: Metal Containers]

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IS : 9503 - 1988
(Reaffirmed 1998)

Indian Standard

SPECIFICATION FOR ALUMINIUM BOTTLES FOR LIQUID PESTICIDES

(First Revision)

UDC 621·798·147 [669·71] : 632·951

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 2

May 1989

Indian Standard

SPECIFICATION FOR ALUMINIUM BOTTLES FOR LIQUID PESTICIDES

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards on 22 September 1988 after the draft finalized by the Metal Containers Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 This standard was first published in 1980 to cover the requirements of aluminium bottles and closure system used for the packing of liquid emulsifiable concentrates referred in Table 2 of IS : 8190 (Part 2)-1980*. Aluminium bottles, if used for any other liquid pesticides not listed in the above referred standard, shall comply with statutory regulation on the packaging of pesticides laid down under the Central Insecticides Act, 1968.

0.2.1 In this revision, the overall heights and diameters of the bottles have been rationalized and the tare mass of empty bottles and mean deviation on the average mass of bottles in a supply batch have been added.

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*Requirements for packing of pesticides: Part 2 liquid pesticides (*first revision*).

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1. SCOPE

1.1 This standard prescribes the requirements, methods of testing and sampling of seamless aluminium bottles up to 1 000 ml capacity for the packing of liquid pesticides.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 1394-1984* shall apply.

3. CAPACITY

3.1 Aluminium bottles shall be of the following nominal capacities:

100, 250, 500 and 1 000 ml.

4. REQUIREMENTS

4.1 Neck Finish — The bottle neck finish shall be such as to provide a leak-proof and pilferproof closure system. Dimensions of a typical design of closure system with plug type HDPE closure are shown in Fig. 1. Other closure designs may be permitted provided they meet the pilferproofness and leak-proofness requirements of the standard.

4.2 Material — The bottle shall be made from aluminium alloy conforming to Grade 19 500 of IS : 737-1986*.

4.2.1 The closure components coming in contact with the product shall be compatible with the product. The plug shall be made of polyethylene, PVC or any other flexible materials. The polyethylene plug shall not show any stress cracking when tested by the method given in **5.2**.

4.3 Manufacture, Shape and Dimensions

4.3.1 The bottles shall be of seamless construction.

4.3.2 The bottom of the bottle may be flat or blobbed upwards.

4.3.3 The shoulder of the bottle shall be round or tapered.

4.3.4 Overall height, diameter and tare mass of the bottles shall be as given in Fig. 1.

4.3.4.1 The mean deviation on average mass of bottles for a supply batch shall be calculated by taking the total mass of the supply batch and dividing it by the total number of bottles in the batch.

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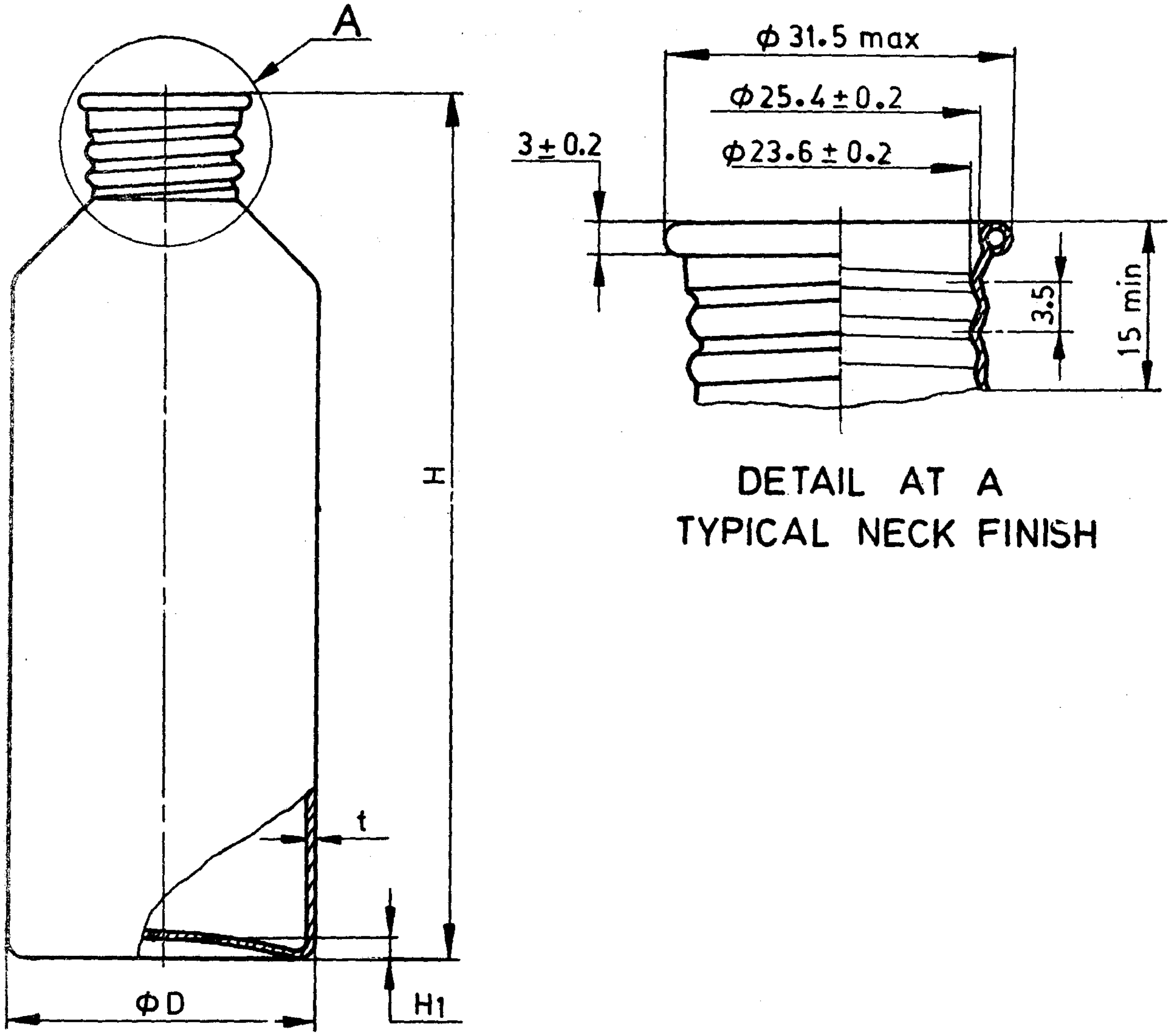
*Glossary of terms relating to metal containers (*third revision*).

*Specification for wrought aluminium and aluminium alloy sheet and strip for general engineering purposes (*third revision*).



DETAIL AT A
TYPICAL NECK FINISH

CAPACITY ml	OUTER DIAMETER +0.2	*H* ±1	*H*₁ *Max*	*t* *Min*	TARE MASS *g*	MEAN DEVIATION IN AVERAGE MASS OF BOTTLES *g*
100	45.0	108	5	0.35	19 ± 2	± 1
250	55.0	154	5	0.35	36 ± 2	± 1.5
500	63.5	215	7	0.45	65 ± 3	± 2.0
1 000	89.0	230	9	0.60	105 ± 5	± 4

All dimensions in millimetres.

FIG. 1 ALUMINIUM BOTTLE DIMENSIONS

4.3.5 The bottles shall be clean, dry and free from any foreign materials.

4.3.6 The bottles may be given a protective lacquer coating internally if required by the purchaser. The lacquer selected shall be compatible with the contents of the bottle for which it is intended to be used.

4.3.7 Aluminium bottles satisfactorily closed with the appropriate closure as specified shall not show any leakage when tested according to **5.1**.

5. TESTS

5.1 Leakage Test — The bottle shall be filled with a coloured solution leaving normal head space. After filling, the bottle shall be appropriately closed. The closed bottle shall then be kept upside down on a white paper for 24 hours. After 24 hours, the bottle shall be examined for any leakage which would be evident from coloured stains on the paper.

5.2 Stress Crack Resistance Test — This test shall be applicable to bottle fitted with polyethylene plug or other closure components made of polyethylene which come in direct contact with the contents of the bottle. The bottle shall be filled up to two-thirds of its capacity with a surface active agent, such as Lissapol Nx, Hioxyd AAO or Teepol TS. The bottle shall then be fitted with the polyethylene plug and screwed tightly with the cap assembly. The sealed bottle shall be kept inverted at 50°C for 24 hours. The plug shall not show any stress cracking or any other permanent deformation after the test is over.

6. MARKING

6.1 The bottles may be marked with the manufactuer's name, initials or recognized trade-mark, if any.

6.1.1 The empty bottle complying with the requirements of this standard may also be marked with the Standard Mark.

Note — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

7. SAMPLING

7.1 The representative samples of the bottles for checking the dimensions, mass and manufacturing defects shall be drawn as prescribed in IS : 3259-1966*. For leakage test (**5.1**), the sampling scheme as given in Table 1 shall be followed:

TABLE 1 SAMPLING SCHEME FOR LEAKAGE TEST OF ALUMINIUM BOTTLES

(*Clause* 7.1)

Lot Size		Sample Size	Acceptance No.	Rejection No.
(1)	(2)	(3)	(4)	(5)
Up to 1 000	First Sample	20	0	2
	Second Sample	20	—	—
	Cumulative Sample	40	1	2
1 000 to 3 000	First Sample	32	0	2
	Second Sample	32	—	—
	Cumulative Sample	64	1	2
3 000 to 10 000	First Sample	50	0	3
	Second Sample	50	—	—
	Cumulative Sample	100	3	4
10 001 and above	First Sample	80	1	4
	Second Sample	80	—	—
	Cumulative Sample	160	4	5

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*Methods for sampling of metal containers.

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Printed at Saini Printers, Delhi, India

AMENDMENT NO. 1 NOVEMBER 1997
TO
IS 9503 : 1988 SPECIFICATION FOR ALUMINIUM BOTTLES FOR LIQUID PESTICIDES

(First Revision)

(*Page* 2, *Fig.* 1) — Insert the following as the first entry against respective columns:

CAPACITY ml	OUTER DIAMETER ± 0.2	H ± 1	H_1 *Max*	t *Min*	TARE MASS g	MEAN DEVIATION IN AVERAGE MASS OF BOTTLES g
50	45.0	80	5	0.35	15 ± 1	± 1

(MTD 32)

Reprography Unit, BIS, New Delhi, India